

PATENT

Attorney Docket No. IMMR-067/04US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent application of Louis B. ROSENBERG *et al.*

Serial No.: 10/730,067

Examiner: Unassigned

Filed: December 9, 2003

Art Unit: 2674

Confirmation No. 2941

For: **METHOD AND APPARATUS FOR STREAMING FORCE VALUES TO A
FORCE FEEDBACK DEVICE**

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Enclosed is an Information Disclosure Statement and accompanying Form PTO/SB/08A for the above-identified patent application.

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- ☐ In accordance with 37 C.F.R. §1.97(c), also enclosed is:
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Dated: October 13, 2004

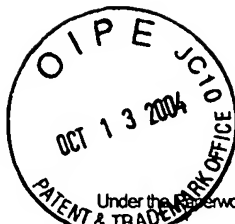
Cooley Godward LLP
ATTN: Patent Group
One Freedom Square
Reston Town Center
11951 Freedom Drive
Reston, VA 20190-5656
Tel: (703) 456-8000
Fax: (703) 456-8100

Respectfully submitted,
COOLEY GODWARD LLP



By: _____

Erik B. Milch
Reg. No. 42,887



(1 of 2)

PTO/SB/08A (10-01)
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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

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Sheet 1 of 3

Complete if Known

Application Number	10/730,067
Filing Date	December 9, 2003
First Named Inventor	Louis B. Rosenberg
Art Unit	2674
Examiner Name	Unassigned
Attorney Docket Number	IMMR067/04US

U.S. PATENT DOCUMENTS

Examiner	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number Kind Code ² (if known)			
		6,422,941	7/23/2002	Thomer et al.	
		6,160,489	12/12/2000	Perry et al.	
		6,111,577	8/29/2000	Zilles et al.	
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		2,972,140	2/14/1961	Hirsch	

Examiner Initials*	Cite No. ¹	Foreign Patent Document			Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Country Code ³	Number ⁴	Kind Code ⁵ (if known)			
		JP	H2-185278		7/19/1990	Taito Corporation	
		JP	H4-8381		1/13/1992	Epoch Co. and Key- Planning Co.	
		JP	H7-24147		1/27/1995	Sega Corporation	
		JP	H5-192449		8/3/1993	Taito Corporation	

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OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

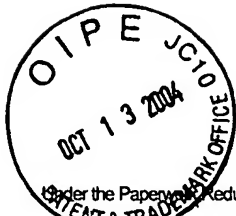
Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
		PATRICK, "Design, Construction, and Testing of a Fingertip Tactile Display for Interaction with Virtual and Remote Environments," <i>Master of Science Thesis</i> , MIT, Aug. 1990, archived Nov. 8, 1990.
		CALDER, "Design of A Force-Feedback Touch-Introducing Actuator For Teleoperator Robot Control," <i>Bachelor of Science Thesis</i> , MIT, May 1983, archived June 23, 1983.
		WIKER, "Teletouch Display Development: Phase 1 Report," <i>Technical Report 1230</i> , Naval Ocean Systems Center, San Diego, July 1988.
		BLISS, "Optical-to-Tactile Image Conversion for the Blind," <i>IEEE Transactions on Man-Machine Systems</i> , Vol. MMS-11, No. 1, March 1970.
		JOHNSON, "Shape-Memory Alloy Tactile Feedback Actuator," <i>Armstrong Aerospace Medical Research Laboratory</i> , AAMRL-TR-90-039, August, 1990.
		KONTARINIS et al., "Tactile Display of Vibratory Information in Teleoperation and Virtual Environments," <i>PRESENCE</i> , 4(4):387-402, Harvard Univ., 1995.
		AUKSTAKALNIS et al., "Silicon Mirage: The Art and Science of Virtual Reality," ISBN 0-938151-82-7, pp. 129-180, 1992.
		EBERHARDT et al., "Inducing Dynamic Haptic Perception by The Hand: System Description and Some Results," <i>DSC-Vol. 55-1, Dynamic Systems and Control: Volume 1</i> , ASME 1994.
		GOBEL et al., "Tactile Feedback Applied to Computer Mice," <i>International Journal of Human-Computer Interaction</i> , Vol. 7, No. 1, pp. 1-24, 1995.
		PIMENTEL et al., "Virtual Reality: through the new looking glass," 2 nd Edition; McGraw-Hill, ISBN 0-07-050167-X, pp. 41-202, 1994.
		"Cyberman Technical Specification," <i>Logitech Cyberman SWIFT Supplement to Logitech Mouse Technical Reference and Programming Guide</i> , 4/5/1994.
		OUHYOUNG et al., "The Development of A Low-Cost Force Feedback Joystick and Its Use in the Virtual Reality Environment," <i>Proceedings of the Third Pacific Conference on Computer Graphics and Applications, Pacific Graphics '95</i> , Seoul, Korea, 21-24 August 1995.
		KACZMAREK et al., "Tactile Displays," <i>Virtual Environment Technologies</i> , Chap. 9, pp. 349-414.
		LAKE, "Cyberman from Logitech," at http://www.ibiblio.org/GameBytes/issue21/greviews/cyberman.html , 1994.
		"Component Maintenance Manual With Illustrated Parts List, Coaxial Control Shaker Part No. C-25502," Safe Flight Instrument Corporation, Revised 28 January 2002 (3 pages).

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Sheet **3** of **3**

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Application Number	10/730,067
Filing Date	December 9, 2003
First Named Inventor	Louis B. Rosenberg
Art Unit	2674
Examiner Name	Unassigned
Attorney Docket Number	IMMR067/04US

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	
		"Technical Manual Overhaul Instructions With Parts Breakdown, Coaxial Control Shaker Part No. C-25502," Safe Flight Instrument Corporation, Revised 15 July 1980 (23 pages).	
		SCANNELL, "Taking a Joystick Ride," <i>Computer Currents</i> , Boston Edition, Vol. 9, No. 11, November 1994	
		ROSENBERG, "Virtual Fixtures: Perceptual Overlays Enhance Operator Performance In Telepresence Tasks," <i>Ph.D. Dissertation</i> , Stanford University, June 1994.	

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		Number Kind Code ² (if known)			
		2002/0030663	03-2002	Tierling et al.	
		2,832,073	04-1958	Arkus et al.	
		2,906,179	09-1959	Bower	
		3,490,059	01-1970	Paulsen et al.	
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		4,769,763	09-1988	Trieb et al.	
		4,787,051	11-1988	Olson	
		4,791,934	12-1988	Brunnett	
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		5,107,080	04-1992	Rosen	
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		5,264,768	11-1993	Gregory et al.	
		5,275,565	01-1994	Moncrief	
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		5,482,051	01-1996	Reddy et al.	
		5,512,919	04-1996	Araki	
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		5,570,111	10-1996	Barrett et al.	
		5,576,727	11-1996	Rosenberg et al.	
		5,587,937	12-1996	Massie et al.	
		5,589,828	12-1996	Armstrong	

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Sheet **5** of **11****Complete if Known**

Application Number	10/730,067
Filing Date	December 9, 2003
First Named Inventor	Louis B. Rosenberg
Art Unit	2674
Examiner Name	Unassigned
Attorney Docket Number	IMMR067/04US

U.S. PATENT DOCUMENTS

Examiner	Cite No. ¹	Document Number Number Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		5,589,854	12-1996	Tsai	
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Examiner Initials*	Cite No. ¹	Foreign Patent Document			Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Country Code ³	Number ⁴	Kind Code ⁵ (if known)			
		JP	4-34610				
		GB	2254911				
		WO	9502801				
		WO	9642078				
		EP	0626634	A2			

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Sheet **6** of **11**

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Application Number	10/730,067
Filing Date	December 9, 2003
First Named Inventor	Louis B. Rosenberg
Art Unit	2674
Examiner Name	Unassigned
Attorney Docket Number	IMMR067/04US

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		Country Code ³	Number ⁴	Kind Code ⁵ (if known)			
		WO	9532459				
		WO	9712357				
		WO	9720305				
		WO	9721160				
		WO	9731333				

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Sheet **7** of **11****Complete if Known**

Application Number	10/730,067
Filing Date	December 9, 2003
First Named Inventor	Louis B. Rosenberg
Art Unit	2674
Examiner Name	Unassigned
Attorney Docket Number	IMMR067/04US

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
		Cursor Walso, "Designer's Corner-Useful Technology for Your Idea File," Design News, Mar. 7, 1993, p. 63.
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Sheet **8** of **11****Complete if Known**

Application Number	10/730,067
Filing Date	December 9, 2003
First Named Inventor	Louis B. Rosenberg
Art Unit	2674
Examiner Name	Unassigned
Attorney Docket Number	IMMR067/04US

OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
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SignatureDate
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Sheet **9** of **11****Complete if Known**

Application Number	10/730,067
Filing Date	December 9, 2003
First Named Inventor	Louis B. Rosenberg
Art Unit	2674
Examiner Name	Unassigned
Attorney Docket Number	IMMR067/04US

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STATEMENT BY APPLICANT**

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Sheet **10** of **11****Complete if Known**

Application Number	10/730,067
Filing Date	December 9, 2003
First Named Inventor	Louis B. Rosenberg
Art Unit	2674
Examiner Name	Unassigned
Attorney Docket Number	IMMR067/04US

OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)		Application Number	10/730,067
		Filing Date	December 9, 2003
		First Named Inventor	Louis B. Rosenberg
		Art Unit	2674
		Examiner Name	Unassigned
Sheet 11 of 11	Attorney Docket Number	IMMR067/04US	

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		Tavkhelidze, D.S. "Kinematic Analysis of Five-Link Spherical Mechanisms," Mechanism and Machine Theory 1974, vol. 9, pp. 181-190.	
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